

In The Claims:

The claims are as follows:

1. (previously presented) A probe microscope comprising:
 - a probe;
 - a scanner for generating relative motion between said probe and a sample;
 - a manual input device having a substantially unlimited range of mechanical motion to control a separation between the sample and said probe;
 - a detector that generates a probe motion signal related to movement of said probe;
 - an alerting device responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.
2. (original) The probe microscope of Claim 1, wherein said alerting device is a mechanical resistance device coupled to said manual input device.
3. (original) The probe microscope of Claim 2, wherein said manual input device is a rotatable knob.
4. (original) The probe microscope of Claim 3, wherein said resistance device is a passive resistance device that changes an amount of torque necessary to turn the knob.
5. (original) The probe microscope of Claim 4, wherein said passive resistance device is a brake.
6. (original) The probe microscope of Claim 4, wherein the amount of torque is related to a magnitude of the interaction.

7. (original) The probe microscope of claim 2, wherein said resistance device is an active resistance device.

8. (original) The probe microscope of Claim 7, wherein said active resistance device actively moves said manual input device.

9. (original) The probe microscope of Claim 2, wherein the feedback produced by said resistance device is variable.

10. (original) The probe microscope of Claim 9, wherein the probe motion signal is indicative of a tip-sample interaction, and wherein the variable resistance is related to the interaction.

11. (original) The probe microscope of Claim 1, wherein the feedback produces an audible output, wherein the audible output is related to a magnitude of the interaction.

12. (previously presented) The probe microscope of Claim 11, wherein the audible output is one of a group including varying pitch and varying volume.

13. (original) The probe microscope of Claim 1, further comprising
a displacement sensor that measures the relative motion between said probe and the sample and generates a corresponding position signal; and
a closed-loop feedback controller that generates a drive signal in response to the position signal.

14. (original) The probe microscope of Claim 3, wherein said knob has a range of motion greater than 180°.

15. (previously presented) The probe microscope of Claim 1, wherein the feedback is one of a group including substantially proportional, exponential and logarithmic with respect to the interaction.

16-24. (cancelled)

25. (previously presented) A probe microscope comprising:
a probe;
a scanner for generating relative motion between said probe and a sample;
a linear manual input device to control a separation between the sample and said probe;
a detector that generates a probe motion signal related to movement of said probe; and
an alerting device responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.

26. (previously presented) The probe microscope of Claim 1, wherein said scanner provides the relative motion in at least two orthogonal directions.

27-52. (cancelled)

53. (previously presented) A probe-based microscope comprising:
a probe;
a manual input device having a substantially unlimited range of mechanical motion to control a separation between a sample and said probe;
a detector that generates a probe motion signal related to movement of said probe;
a brake responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.

54. (previously presented) A probe-based microscope comprising:
a probe;
a manual input device having a substantially unlimited range of mechanical motion to control a separation between a sample and said probe;
a detector that generates a probe motion signal related to movement of said probe;
a braking means responsive to said signal to provide substantially real-time feedback to an operator, the feedback being indicative of interaction between the sample and said probe.

55. (previously presented) The probe microscope of claim 25, wherein said alerting device is a mechanical resistance device coupled to said manual input device.

56. (previously presented) The probe microscope of Claim 55, wherein said mechanical resistance device is a brake.